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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/646,906	10/10/2000	Mitsunori Nagashima	P100806-0000	5977

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[REDACTED] EXAMINER

VORTMAN, ANATOLY

[REDACTED] ART UNIT

[REDACTED] PAPER NUMBER

2835

DATE MAILED: 07/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)
09/646,906	NAGASHIMA, MITSUNORI
Examiner	Art Unit
Anatoly Vortman	2835

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 06 June 2003 (RCE).

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1,2 and 4 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1,2,4 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17 2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413) Paper No(s). _____.
2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) Notice of Informal Patent Application (PTO-152)
3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. 6) Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 05/08/2003 (paper # 11) has been entered.

By the aforementioned submission claim 1 has been amended. Claims 1, 2, and 4 are pending in the instant application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 2, and 4, are rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant's disclosure in view of GB/2,302,451 to Shirakawa et al., (Shirakawa).

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Regarding claim 1, the Applicant admitted ("Prior Art" Fig. 3A and 3B) that it has been known in the art at the time the invention was made to use a mount structure for thermal fuse (34) on circuit board (31), comprising:

a circuit board (31) having a first surface where a predetermined circuit (for an electronic component (32)) is formed; and a second opposite surface; said electronic component (32) attached to the first surface of said circuit board (31); a thermal fuse (34) provided on said first surface of said circuit board (31) in a close proximity to said electronic component (32), responding to the temperature of said electronic component (32) via heat conducting insulating member (33) filling the separation between said electronic component (32) and said thermal fuse (34) for breaking said predetermined circuit; and a through hole in the circuit board (31), wherein said thermal fuse (34) is electrically connected to said predetermined circuit via said through hole (by leads (35)), *but did not disclose* a through opening joining said first and second surfaces of said circuit board, wherein said electronic component (32) and said thermal fuse (34) are arranged across said opening on said opposite first and second surfaces of said circuit board (31).

Shirakawa disclosed (Fig. 2) a mounting arrangement for electronic components (1 and 2) on a circuit board (3) having a first and a second opposite surfaces, said circuit board (3) having a through opening (9), said opening (9) connecting said first and second surfaces of the circuit board (3), wherein said electronic component (1) is attached to the first surface of the circuit board (3) to extend across said through opening (9), and another electronic component (2) provided on the second (opposite) surface of said circuit board (3) to enter said through opening (9), wherein an insulating member (4) is filling said opening (9).

Since the mounting arrangement disclosed by "Prior Art" Fig. 3A and 3B of the present invention and the invention of Shirakawa are from the same field of endeavor (mounting arrangements for electronic components on a circuit board), the purpose of mounting the electronic components across the opening between the first and second opposite surfaces of the circuit board disclosed by Shirakawa would be recognized in the prior art mounting arrangement depicted on Fig. 3A and 3B of the instant application.

It would have been obvious to a person of ordinary skill in the electronic device and fuse arts at the time the invention was made to modify said prior art mounting arrangement depicted on Fig. 3A and 3B of the instant application according to the teachings of Shirakawa by providing said circuit board (31) with a through opening between the first and second opposite surfaces of the circuit board (31), by placing said electronic component (32) across said opening and by placing said thermal fuse (34) on the second surface of said circuit board (31) to enter said through opening for responding to the temperature of said electronic component (32) through a heat conducting filler (33), in order to reduce the size (i.e. the height) of the assembly (for motivation, please see Shirakawa, p.3, lines 4+; and p.8, lines 12+).

Also, regarding claim 1, the Examiner believes that a following case law would be applicable: "It is noted that where a part of a device may be relocated without modification to the operation of the device (emphasis added), such a relocation is considered to have been within the skill of the art". *In re Japikse*, 86 USPQ 70 (1950).

Regarding claim 2, the Applicant admitted that said heat conducting insulating member (33) is a silicone resin (instant application, last line of page 1).

Regarding claim 4, the “Prior Art” Fig. 3A and 3B of the instant application depict a rod-shaped thermal fuse (34).

Response to Arguments

4. The main thrust of the Applicant’s arguments is directed to the assertion that in Shirakawa reference “one device 2 and another device 1 are mounted on the same side of the wiring board 3” (Amendment, page 5, lines 15, 16). The Examiner respectfully disagrees with the aforementioned interpretation of the Shirakawa device. According to Fig. 2 of Shirakawa, the device (2) is mounted above the second surface of the circuit board (3), since the device body stands up above said surface. As such, the Examiner believes that said device (2) may be considered as mounted on said second surface that is the opposite of the first surface on which said device (1) is mounted. Fig. 2 clearly shows that said devices (1) and (2) are mounted on opposite surfaces of the circuit board and not on the same surface as the Applicant has asserted.

Furthermore, the Examiner believes, that the fact that “wires 6 are located above the device 2” (Amendment, p. 5, last line) does not preclude said device (2) from being mounted on the second opposite surface of the circuit board (as depicted on Fig. 2). Indeed, if this would be the case, than the Applicant would have been in contradiction with his own disclosure, since as depicted on the Applicant’s Fig. 3B, the device (33) is mounted to the first surface of the circuit board (31), while wires (35) are connected to the second opposite surface of said circuit board (31).

Conclusion

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5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anatoly Vortman whose telephone number is 703-308-7824. The examiner can normally be reached on Monday-Friday, between 9:30am and 6:00 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Darren Schuberg can be reached on 703-308-4815. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3431 for regular communications and 703-305-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1782.

Anatoly Vortman
Primary Examiner
Art Unit 2835

A.V.
July 14, 2003

A. Vortman